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the purchase of the country from the aborigines opened it out to civilization. But Jacob River was an exception: it had been kept from the fate of the other settlements, mainly owing to the energy of Mr. Hanwell, who imported stock from Australia, sent whaling and sealing expeditions to the almost unknown West coast of New Zealand, and encouraged such branches of industry as were available. The inhabitants are now remarkably thriving. Mr. Thomson draws a close parallel between the present condition of Jacob settlement and that of the Shetlands many years since, as described by Sir Walter Scott; there is the same seclusion from a more stirring world, the same pursuits and the same social condition. The west of New Zealand is the scene of their whaling and sealing enterprise; its coast is remarkably stormy, but sounds and promontories alternate in such close succession that harbours of refuge are everywhere to be found. The water is exceedingly deep close in to shore, and vessels frequently moor to the trees, where they are securely protected from wind by the steep cliffs. The natives of Jacob's Town profess Christianity; they dress and build cottages in European fashion, and these, by the way, are remarkably tormented with fleas.

Finally, Mr. Thomson draws a humorous comparison between the occupations and way of living of an officer on the Indian survey (in which he formerly served) and those of his present employment. Notwithstanding the rude work of the latter, he considers the health and hearty enjoyment of life to more than compensate for the absence of luxuries, from which the languor of an Indian climate had removed the zest.

5. *On the Fine Regions of the Trade Winds.* By THOMAS HOPKINS, M.B.M.S., V.P. of the Manchester Literary and Philosophical Society.

MR. HOPKINS' paper is a sequel to other writings,* in which he has proposed a new theory upon the causes of trade winds and monsoons. It is not specially explained in the present communication, but as it is alluded to, throughout its pages, a concise description of it becomes necessary. Mr. Hopkins denies many of the facts usually quoted in support of the commonly received Hadleian theory; he adduces others, which he considers to be at variance with it, and maintains that the prime mover of these atmospheric phenomena resides in the influence of certain vast mountainous tracts, which produce an indraught of air from all sides, owing to causes we will proceed to indicate. These mountainous districts condense the moisture of the air that impinges upon them in large quantities, and Mr. Hopkins considers that condensation of moisture lightens the air, and therefore causes it to rise, for two distinct reasons: the one, that it has become specifically lighter owing to its loss of water; the other, that it is warmer, and therefore more rarefied, than other air at the same elevation as itself, owing to heat given out by the act of condensation. If these postulates are acceded to, it follows that we have a system of ascending currents, an indraught of winds to feed them, and a consequent escape and overflow of dry air in the higher regions. The present paper suggests, rather than undertakes an enquiry into the localities, where the dried air again reaches the earth in fulfilling its circuit.

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* *See* Journal of the Royal Geographical Society, vols. 26 and 27; and Transactions of the Royal Society.

"The best evidence we have of the immediate source of the air in the trade winds of the Pacific is to be found in its degree of dryness. All accounts represent them as being at first, and to a considerable degree, accompanied by a clear sky, but I have met with no register of the humidity of the air. The researches that are now in progress by Americans, as well as English, to improve our knowledge of nautical geography will probably give fresh information; but it is particularly desirable that there should be registrations of the wet and of the dry bulb-thermometer in the parts treated of. If we were in possession of such registrations over a few lines of the Pacific from E. to W., a fair inference might no doubt be arrived at respecting the sources of the great masses of air which constitute the trade winds of this ocean."

Quotations are then made from various well known authors, Dana, Melville, and Darwin, to show the extent over which the fair weather of the trade winds extends, both in the Pacific and the Atlantic.

Over both these oceans Mr. Hopkins considers that the currents in the higher regions pass in an opposite direction to those below, but that elsewhere, as in the Indian Ocean, the case is probably different.

"It is not necessary that we should presume that the air which descends in a fine locality has come from the terminus of the same wind that it feeds. The proposition is that air which has been dried by condensation of some of its vapour, in high regions, descends in some other parts to the lower regions as dry air, making the locality fine, but it does not follow that it must descend to feed the *same* stream that had furnished it."

"Condensation of vapour, by irregularly disturbing the atmosphere at various heights, puts the air in motion at those heights, making it ascend in one part, and it must come down in another. Some of the areas of ascension have been described, and a few of descent, but there are innumerable others spread over the surface of the globe, every hill or place, where heavy rain falls, being to some extent an area of ascent, with the wind that blows towards it coming directly or indirectly from a region of descent. The whole aerial ocean to a considerable height is thus kept in a state of motion and change, and the invisible elastic vapour which is sent into the atmosphere by evaporation, in one part, comes down as rain in another. The different quantities of vapour condensed in equal times in different localities, and the elevations at which the condensation takes place, modify the movements of the air in various degrees, and in all conceivable ways, but the nature of the processes is always the same."

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6. *On Dr. Rink's Remarks respecting the supposed Discovery by Dr. Kane of the North Coast of Greenland and an Open Polar Sea.*

The PRESIDENT.—I have, Gentlemen, now to call your attention to a subject which, although at first sight it might appear untoward to the American gentlemen, Mr. Poor, Professor Alexander, and any others who may be present, will, I have no doubt, when properly explained, satisfy them that the feeling of vexation which has been expressed at New York, has solely arisen out of an inaccurate newspaper account of what took place at a former meeting of this Society. You will recollect that at the meeting of this Society in April a paper was read, as sent to us by Dr. Henry Rink, the Danish Lieutenant-Governor of South Greenland—a gentleman extremely well acquainted with the glaciers of that country. In that paper, whilst making some comments of a critical character on Dr. Kane's work, he questioned the accuracy of the determination of the extreme north latitude fixed by Morton, one of Dr. Kane's party. Upon that paper being read, two of our distinguished Arctic explorers, Sir George Back and Captain Collinson, made observations which led to a conviction on the part of Mr. Arrowsmith and the practical geographers who had studied the subject, that the extent of northern latitude claimed by Dr. Kane, on the observation of his steward Morton, must be reduced.

Upon that subject I will request the Secretary to read a letter from Professor Bache, who completely justifies the main conclusions at which our nautical men had arrived. In fact, the only difference between them and the Professor amounts to some seven or eight miles. Now, if that is all the difference existing between the American version and our own, it is surely undeserving of attention.

My chief object, however, in calling attention to the case is to state that throughout all the observations made on the former evening, not a single individual disparaged in the slightest degree the great merits of that illustrious traveller, Dr. Kane. We all truly admire him; and during the short period he was amongst us, every person who saw him, loved him. We gave him our gold medal, have done him all the honour in our power, and having striven to record our high sense of his great and noble achievements, it was impossible that *we* should disparage his merits.

Mr. Jay, in his letter to myself, uses words employed in a newspaper. Now, I must declare from the chair that that statement is most inaccurate. Had the statement been correct, our American friends would have had reason indeed to be offended. Dr. Shaw will now read the letter of Professor Bache addressed to the Hon. G. M. Dallas, the American Minister :—

Washington, W. C., May 6, 1858.

MY DEAR SIR,—As desired in the note addressed to you by Dr. Norton Shaw, under date of April 13, 1858, I have caused an examination to be made of the data for Morton's northing in the expedition in which he saw the open Polar Sea. I selected for this